

What I claim is:

1. An on-demand needle retaining and locking mechanism for use in an intravenous needle-catheter assembly, said mechanism comprising:

a rotatable on-demand needle-safety container comprised of

- (i) an elongated shell having at least one discrete wall and being of predetermined dimensions and configuration,
- (ii) an open end in said shell adapted for passage there through of a piercing needle,
- (iii) an internal spatial volume within said shell sufficient for containing and securing the entirety of a piercing needle,
- (iv) a sized tab member disposed on an exterior surface of said shell at a prechosen aligned position adjacent to, but axially removed from, said open end, and
- (vi) a plurality of pre-positioned radial and axial cutouts in said wall of said shell wherein at least one of said cutouts is radially positioned and aligned with said tab member; and

a needle housing unit adapted for mounting upon and axial movement at will over said rotatable needle-safety container, said needle housing unit being comprised of

- (a) a casing of predetermined dimensions, configuration, and overall spatial volume,
- (b) a flash chamber for holding one end of a piercing needle, and

- (c) a guide member sized for aligned radial movement at will into and out said radially positioned cutout and for aligned axial movement through said axial cutout in said wall of said needle-safety container.

2. An on-demand needle retaining and locking mechanism for use in an intravenous needle-catheter assembly, said mechanism comprising:

a needle-safety container comprised of

a linear shell

- (i) having at least one discrete wall and being of predetermined dimensions and configuration,
- (ii) having an open end in said shell adapted for passage there through of a piercing needle, and
- (iii) having an internal spatial volume sufficient for containing and securing a piercing needle,
- (iv) at least one pre-positioned axial cutout in said wall of said linear shell,

a hollow collar contiguously aligned with and rotably attached to an open end of said linear shell, said rotatable collar

- (1) having at least one wall and being of predetermined dimensions and configuration,
- (2) having two open ends adapted for passage there through of a piercing needle,

(3) a solid tab member which is disposed on an exterior surface of said wall, and

(4) at least one pre-positioned radial cutout in said wall which is radially positioned and aligned with said solid tab member; and

a needle housing unit adapted for mounting upon and axial movement at will over said needle-safety container and said rotatable collar, said needle housing unit being comprised of

- (a) a casing of predetermined dimensions, configuration, and overall spatial volume,
- (b) a flash chamber for holding one end of a piercing needle, and
- (c) a guide member for aligned radial movement at will into and out of said radially positioned and aligned cutout of said rotatable collar and for axial movement at will through said axial cutout of said linear shell of said needle-safety container.

3. The needle-catheter assembly as recited by claim 1 or 2 wherein said radially positioned and aligned cutout comprises at least one contoured slot.

4. The needle-catheter assembly as recited by claim 1 or 2 wherein said pre-positioned cutouts include at least one axial groove which is linearly aligned for passage of said guide member.

5. The needle-catheter assembly as recited by claim 1 or 2 wherein said needle housing further comprises

a configured spool section comprising a tab-engagement segment and at least one sized notch for on-demand engagement with said tab member of said needle-safety container, said spool portion being alignable at will with said tab member and being able to engage, retain, and disengage said tab member of said needle-safety container on-demand; and

an extended body section

6. The needle-catheter assembly as recited by claim 5 wherein said configured spool section includes a pair of sized notches.

7. In a needle-catheter assembly including a hollow cannula, a piercing needle disposed co-axially within the cannula, an adjacently positioned needle-safety container, and a needle housing moveably mounted on said needle-safety container, the improvement of an on-demand needle retaining and locking mechanism comprising:

a rotatable on-demand, elongated needle-safety container including

- (i) an elongated shell having at least one discrete wall and being of predetermined dimensions and configuration,
- (ii) an open end in said shell adapted for passage there through of a piercing needle,
- (iii) an internal spatial volume within said shell sufficient for containing and securing the entirety of a piercing needle, and

- (iv) a solid tab member disposed on an exterior surface of said shell at a prechosen aligned position adjacent to, but axially removed from, said open end, and
- (v) a plurality of pre-positioned cutouts in said wall of said shell wherein at least one of said cutouts is radially positioned and aligned with said tab member and at least another of said cutouts is axially positioned; and

a needle housing unit adapted for mounting upon and axial movement at will over said rotatable needle-safety container, said needle housing unit including

- (a) a casing of predetermined dimensions, configuration, and overall spatial volume,
- (b) a configured spool section comprising a flanged rib and a tab-engagement segment, and at least one notch for on-demand engagement with said tab member of said needle-safety container, said spool portion being alignable at will with and being able to engage, retain and disengage said tab member of said rotatable needle-safety container on-demand,
- (c) an extended body section, and
- (d) a flash chamber for holding one end of a piercing needle, and
- (e) a guide member for aligned radial and axial movement at will through said pre-positioned cutouts in said wall of said needle-safety container.

8. In a needle-catheter assembly including a hollow cannula, a piercing needle disposed co-axially within the cannula, an adjacently positioned needle-safety container, and a needle housing moveably mounted on said needle-safety container, the improvement of an on-demand needle retaining and locking mechanism comprising:

a needle-safety container including

a linear shell

- (i) having at least one discrete wall and being of predetermined dimensions and configuration,
- (ii) having an open end in said shell adapted for passage there through of a piercing needle, and
- (iii) having an internal spatial volume sufficient for containing and securing a piercing needle,
- (iv) at least one pre-positioned axial cutout in said wall of said linear shell,

a hollow collar contiguously aligned with and rotably attached to an open end of said linear shell, said rotatable collar including

- (1) at least one wall and being of predetermined dimensions and configuration,
- (2) two open ends adapted for passage there through of a piercing needle, and
- (3) at least one radially positioned and aligned cutout in said wall, and
- (5) a solid tab member disposed on an exterior surface of said wall of said rotatable collar at a position adjacent to, but spatially removed

from, an end of said rotatable collar, said position being radially aligned with said cutout in said wall; and

a needle housing unit adapted for mounting upon and axial movement at will over said needle-safety container and said rotatable collar, said needle housing unit including

- (a) a casing of predetermined dimensions, configuration, and overall spatial volume,
- (b) a configured spool section comprising a tab-engagement segment, and at least one sized notch for on-demand engagement with said tab member of said rotatable collar, said spool section being alignable at will with and being able to engage, retain and disengage said tab member of said rotatable collar on-demand,
- (c) an extended body section, and
- (d) a flash chamber for holding one end of a piercing needle, and
- (e) a guide member for aligned radial and axial movement at will through said pre-positioned cutouts of said rotatable collar and of said linear shell of said needle-safety container.